

What is claimed is:

1. An assembly for a ball bearing with double raceway comprising:

an inner ring member provided with a large-diameter raceway surface and a small-diameter raceway surface from one toward another in an axial direction on an outer peripheral surface;

double row cages arranged in outer diameter sides of the respective raceway surfaces in the inner ring member; and

double ball rows respectively held in the cages,

wherein the inner ring member, the respective cages and the respective ball rows are assembled in a non-separable manner, and are assembled in an outer ring member provided with a large-diameter raceway surface and a small-diameter raceway surface from one toward another in an axial direction on an inner peripheral surface in correspondence to both the raceway surfaces from one side in the axial direction.

2. An assembly for a ball bearing with double raceway as claimed in claim 1, wherein the respective ball rows include a large-diameter side ball row interposed between the large-diameter raceway surface of the outer ring member and the large-diameter raceway surface of the inner ring member, and a small-diameter side ball row interposed between the small-diameter raceway surface of the outer ring member and the small-diameter raceway surface of the inner ring member, and a small-end side shoulder portion is formed in another side in the axial direction on the small-diameter raceway surface of the inner ring member, the small-end side shoulder portion having a larger diameter than a diameter of a bottom of the small-diameter raceway surface in the inner ring member and providing an obstruction for preventing the small-diameter side ball row from escaping to another side in the axial direction.

3. An assembly for a ball bearing with double raceway

as claimed in claim 2, wherein an intermediate side shoulder portion is formed between the large-diameter raceway surface of the inner ring member and a small-diameter raceway surface of the inner ring member, the intermediate side shoulder portion having a larger diameter than a diameter of a bottom of the large-diameter raceways surface formed in the inner ring member and providing an obstruction for preventing the ball row of the large-diameter side assembly from escaping to another side in the axial direction.

4. An assembly for a ball bearing with double raceway as claimed in claim 2, wherein an inclined surface is formed between the large-diameter raceway surface and the small-diameter raceway surface in the inner ring member for guiding the ball of the large-diameter side ball row at the time of assembling three elements comprising the inner ring member, the respective ball rows and the respective cages in the outer ring member.

5. An assembly for a ball bearing with double raceway as claimed in claim 2, wherein the cage includes a large-diameter cage for holding the large-diameter side ball row, and a small-diameter cage for holding the small-diameter side ball row, the large-diameter cage is assembled in the large-diameter side ball row so as to be formed as a large-diameter side assembly, the small-diameter cage is assembled in the small-diameter side ball row so as to be formed as a small-diameter side assembly, and the large-diameter side assembly and the small-diameter side assembly are respectively assembled in the large-diameter raceway surface and the small-diameter raceway surface in the inner ring member in a non-separable manner.

6. A manufacturing method of a ball bearing with double raceway comprising:

a first step of preparing an inner ring member provided with a large-diameter raceway surface and a small-diameter

raceway surface from one toward another in an axial direction on an outer peripheral surface, double row cages arranged in outer diameter sides of the respective raceway surfaces in the inner ring member, and double ball rows respectively held in
5 the double row cages,

a second step of assembling the inner ring member, the respective cages and the respective ball rows in a non-separable manner so as to obtain an assembly; and

a third step of assembling the assembly in an outer ring
10 member provided with a large-diameter raceway surface and a small-diameter raceway surface in correspondence to both the raceway surfaces from one side in the axial direction.